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The Fair Division of Surplus from a FRAND License Negotiated in Good Faith

J. Gregory Sidak

I. NEGOTIATING FRAND LICENSES IN GOOD FAITH

Government agencies in Japan, China, the European Union, the United States, and other countries have issued guidelines to facilitate private negotiation to license the use of SEPs that a patent holder has voluntarily committed to a standard-setting organization (SSO) to offer to license on FRAND terms to a third party seeking to implement the standard.[1] In 2022, government agencies renewed their efforts to issue or reissue such guidelines.[2] Although those guidelines differ in several respects, a

[1] Guanyu Shenli Biaozhun Biyao Zhuanli Jiufen Anjian De Gongzuo Zhiyin (Shixing) (关于审理标准必要专利纠纷案件的工作指引 (试行)) [Working Guidelines on the Trial of Standard-Essential Patent Dispute Cases (for Trial Implementation)] (Apr. 26, 2018); *Guide to Licensing Negotiations Involving Standard Essential Patents*, Japan Patent Office (June 5, 2018), www.jpo.go.jp/e/support/general/sep_portal/document/index/guide-seps-en.pdf; Communication from the Com. to the Eur. Parliament, the Council, & the Eur. Econ. and Soc. Comm., COM (2017) 712 final, at 2 (Nov. 29, 2017) ("The Commission . . . considers that there is an urgent need to set out key principles that foster a balanced, smooth and predictable framework for SEPs."); Andrei Iancu, Under Sec'y of Com. for Intell. Prop. & Dir. of the United States Patent and Trademark Office, Remarks Delivered at the Standard-Essential Patents Strategy Conference, Solvay Business School, Université Libre de Bruxelles (ULB) (Sept. 10, 2019), www.uspto.gov/about-us/news-updates/remarks-director-iancu-standard-essential-patents-strategy-conference ("Government policy should make clear that good faith negotiations are expected on both sides, and that the presence or absence of good faith during negotiations can be a factor in the setting of remedies for infringement of FRAND-encumbered SEPs.").

[2] US Dep't of Just., Public Comments Welcome on Draft Policy Statement on Licensing Negotiations and Remedies for Standards-Essential Patents Subject to F/RAND Commitments (Dec. 6, 2021), www.justice.gov/opa/pr/public-comments-welcome-draft-policy-statement-licensing-negotiations-and-remedies-standards?utm_campaign = subscriptioncenter&utm_content = &utm_medium = email&utm_name = &utm_source = govdelivery&utm_term=; *Standard Essential Patents and Innovation: Call for Views*, Intellectual Property Office (UK) (Dec. 7, 2021), www.gov.uk/government/consultations/standard-essential-patents-and-innovation-call-for-views/standard-essential-patents-and-innovation-call-for-views; Jacob Schindler, *Japanese Ministry Seeks Industry Input on SEP Negotiation Guidelines*, IAM (Feb. 7, 2022), www.iam-media.com/frand/japanese-ministry-seeks-industry-input-sep-

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common theme that emerges is the proposal that each counterparty negotiate a FRAND license in good faith.

Judicial opinions in SEP cases also refer to the duty to negotiate a FRAND license in good faith, but judges so far have failed to explain that duty's precise origin or its metes and bounds. For example, in two European decisions, *Sisvel v. Haier* and *Unwired Planet International Ltd. v. Huawei Technologies Co.*, the German Federal Court of Justice and the High Court of England and Wales, respectively, have emphasized that patent implementers must be willing participants in a FRAND negotiation.[3] In the United States in *TCL v. Ericsson*, Judge James Selna of the US District Court for the Central District of California quoted the relevant part of the FRAND commitment established by the European Telecommunications Standards Institute (ETSI), but he never determined the precise obligations that this contract imposed on the SEP holder, much less any obligation that ETSI imposed on the

negotiation-guidelines (citing Ministry of Economy, Trade, and Industry, *Study Group on the Ideal Trading Environment for Licenses for Standard Essential Patents* (Dec. 15, 2021) (Japan), www.meti.go.jp/shingikai/economy/patent_license/pdf/006_gijiyoshi.pdf?_x_tr_sl = ja&_x_tr_tl = en&_x_tr_hl = ja&_x_tr_pto = wapp); European Commission, *Call for Evidence for an Impact Assessment; Intellectual Property – New Framework for Standard-Essential Patents*, ARES (2022) 1076263 (Feb. 14, 2022) (EU), https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13109-Intellectual-property-new-framework-for-standard-essential-patents_en.

[3] Sisvel v. Haier, Bundesgerichtshof [BGH] [Federal Court of Justice] May 5, 2020, KZR 36/17, ¶ 83 (Ger.), www.arnold-ruess.com/fileadmin/user_upload/2020_07_07_FCJ_SisvelvHaier_English ("The obligation of the market dominant patentee to inform the infringing party about the infringement and the possibility of obtaining a licence and to make an offer of a licence to the infringer willing to take a licence is not an end in itself, but is intended to make it easier for the latter to negotiate reasonable conditions with the patentee for his use. For this reason, after the first indication of infringement, it is not sufficient for the establishment of further obligations for the market-dominant patentee if the infringer then merely shows himself willing to consider entering into a licence agreement or to enter into negotiations as to whether and under what conditions the conclusion of a contract is possible for him. Rather, the infringer, for his part, must clearly and unequivocally declare his willingness to conclude a licence agreement with the patent proprietor on reasonable and non-discriminatory terms and must also subsequently participate in the licence agreement negotiations in a target oriented manner.") (citation omitted); Unwired Planet Int'l Ltd. v. Huawei Techs. Co. [2017] EWHC (Pat) 711 [163] (Eng.) ("The implementer must take a FRAND approach to the negotiation and accept a licence on FRAND terms if it wishes to take advantage of the constraint on the patentee's rights imposed by the FRAND undertaking. A FRAND approach to negotiation does not mean that parties cannot negotiate in good faith and a FRAND approach will allow for starting offers which leave room for negotiation. The fact an opening offered rate is higher than the true FRAND rate does not mean of itself that a patentee has failed to take a FRAND approach any more than the converse could be said about an implementer. On the other hand, making extreme offers and taking an intransigent approach which prejudice fair, reasonable and non-discriminatory negotiation is not a FRAND approach."), *aff'd*, [2018] EWCA (Civ) 2344 (Eng.), *aff'd*, [2020] UKSC 37 (Eng.); *id.* [693] ("An alleged infringer who wishes to show they are a willing licensee would do well to make an open offer of the FRAND terms it would be prepared to accept."); *id.* [708] ("[A] willing licensee must be one willing to take a FRAND licence on whatever terms are in fact FRAND.").

implementer as an implicit condition of its being empowered to enforce that FRAND contract as that contract's intended third-party beneficiary.[4]

The agencies issuing guidelines have conspicuously neglected to define good faith negotiation, let alone determine the steps that each party must take (and how quickly each must act) before a court may declare the negotiation to be at an impasse, such that contract formation has failed and the SEP holder may enforce its remedies against the unlicensed implementer as provided in the national law of the jurisdiction that issued the patents in suit. The Antitrust Division of the US Department of Justice (DOJ) has pontificated about the problem of implementers refusing to act in good faith, but it has not proposed any meaningful solution.[5] In a September 2020 supplement to a 2015 business review letter, the Antitrust Division merely requested that "any SDO policy updates should encourage good-faith bilateral licensing negotiation by both patent holders *and* implementers."[6] That supplement was shelved in April 2021, early in the Biden administration, approximately seven months after it had been issued by the Trump administration.[7]

In this section, I seek to make two points regarding a duty to negotiate in good faith. My first point is that mechanism design – a field of study within economics and game theory – can add rigor to the policy prescriptions and nebulous statements of government agencies about good faith negotiation. For the SEP holders and implementers that have experienced protracted litigation over the licensing of SEPs for smartphones, it is possible to draw lessons from what economists managed to fashion from whole cloth two decades ago to create the functioning market for the public auctioning and subsequent transferability of licenses to 3G spectrum. Without the groundwork laid by those economists, the smartphone today, if it

4 TCL Commc'n Tech. Holdings, Ltd. v. Telefonaktiebolaget LM Ericsson, Nos. SACV 14-341 JVS, CV 15-2370 JVS, 2018 WL 4488286, at *6 (C.D. Cal. Sept. 14, 2018), *vacated, reversed in part, and remanded*, 943 F.3d 1360 (Fed. Cir. 2019). For my own extended discussion of the SEP holder's and the implementer's possible duties to negotiate a FRAND license in good faith, see J. Gregory Sidak, *Judge Selna's Errors in TCL v. Ericsson Concerning Apportionment, Nondiscrimination, and Royalties under the FRAND Contract*, 4 Criterion J. Innovation 101, 102–07 (2019) [hereinafter *Judge Selna's Errors*].

5 Makan Delrahim, Assistant Att'y Gen., Antitrust Div., US Dep't of Just., Remarks as Prepared for the Licensing Executives Society (LES) 2019 Annual Meeting: "The Times They Are A'Changin'": The Nine No-No's in 2019, at 6 (Oct. 21, 2019), www.justice.gov/opa/speech/file/1213831/download ("[A]ctual evidence of hold-up remains scant even after a decade has passed since the theory was first introduced. The gulf between the theory and practice is especially troubling as many advocates ignore the real risk of hold-out by potential licensees of the chosen SEP technology. 'Hold-out,' of course, refers to the countervailing problem to hold-up: when an implementer licensee refuses to negotiate in good faith with a patent holder for a license, and instead forces the patent holder either to undertake significant litigation costs or to give up IP enforcement efforts.").

6 Letter from Makan Delrahim, Assistant Att'y Gen., US Dep't of Just., to Sophia A. Muirhead, Gen. Coun. & Chief Compliance Officer, IEEE (Sept. 10, 2020), www.justice.gov/atr/page/file/1315291/download (emphasis in original).

7 DOJ Policy: Department Restores 2015 Business Review Letter Interpreted as Opposing SEP Holders Seeking Injunctive Relief, Capitol Forum (Apr. 14, 2021).

existed at all, would be little more than an expensive pocket camera or portable media player searching for a Wi-Fi signal.[8]

My second point is that courts and policymakers possibly have failed to recognize the inadequate design of the current mechanism for FRAND licensing negotiations because that foundational economic question has become intertwined with, if not obscured by, the question of which jurisdiction's law controls a court's interpretation of the FRAND contract. Simply put, as I explained in my 2018 article "The FRAND Contract," the existing body of American contract law concerning offer, acceptance, and contract formation is concise and relatively unambiguous, and thus it provides a turnkey legal framework for resolving FRAND licensing disputes.[9] In a word, the American jurisprudence on contract formation is efficient. No further guidelines are necessary to apply that jurisprudence productively to interpreting the rights and duties surrounding negotiations for the licensing of SEPs. The wheel needs no reinventing.

A. *The Phenomenon of Differential Ambiguity in Matters of Contract Formation and Good Faith Negotiation*

Building on the English common law tradition, but insulated from Europe by an ocean, American contract law appears to have evolved in its own distinctly didactic manner, which I attribute to the long shadow cast by Oliver Wendell Holmes[10] and his intellectual heir in American jurisprudence, Richard Posner.[11] With respect to

[8] The economists who made major contributions to the design of those spectrum auctions include Nobel laureate Paul Milgrom of Stanford, Paul Klemperer of Oxford, and Ken Binmore of University College London. Paul Milgrom, Putting Auction Theory to Work (2004); Paul Klemperer, Auctions: Theory and Practice (2004); Ken Binmore & Paul Klemperer, *The Biggest Auction Ever: The Sale of the British 3G Telecom Licenses*, 112 Econ. J. C74 (2002); Paul Milgrom, *Putting Auction Theory to Work: The Simultaneous Ascending Auction*, 108 J. Pol. Econ. 245 (2000).

[9] J. Gregory Sidak, *The FRAND Contract*, 3 Criterion J. Innovation 1 (2018). In at least one reported case, a RAND commitment was found to be unenforceable, thus mooting the question of contract interpretation. In an investigation before the US International Trade Commission (ITC), Chief Administrative Law Judge Charles Bullock, in the public version of his Initial Determination on Violation of Section 337 and Recommended Determination on Remedy and Bond, found that, on the basis of the specific facts of the case, and pursuant to New York law, the complainant's RAND commitment to the Joint Electron Device Engineering Council (JEDEC) was too ambiguous to constitute an enforceable contract. Inv. No. 337-TA-1023, slip op. at 195 (USITC Nov. 14, 2017) (Initial Determination – Public Version); Sidak, *The FRAND Contract*, *supra* note 9, at 2–6.

[10] Oliver Wendell Holmes, Jr., The Common Law (1881).

[11] Richard A. Posner, Economic Analysis of Law (9th ed. 2014). As a new federal appellate judge, Posner relished every opportunity to cite an old common law case. Within four months of joining the Seventh Circuit, he found in a diversity case of first impression that Hadley v. Baxendale was the controlling authority for deciding a breach-of-contract claim involving a misdirected electronic funds transfer. EVRA Corp. v. Swiss Bank Corp., 673 F.2d 951, 955–59 (7th Cir. 1982).

the principles of contract formation, that American demand for crisp answers implicitly conduces to what economists call activity rules and closing rules, which simplify the task of definitively confirming whether a meeting of the minds has or has not occurred (much in the spirit, as I shall explain in the following pages, of economists realizing that national governments needed to define unambiguous activity rules and closing rules if they were to succeed in creating a workable market mechanism to auction licenses for 3G spectrum). By default, American law provides a clear closing rule for determining when contract formation has failed. The SEP holder makes an offer that is legitimately FRAND. Either the offer is accepted, or it is rejected explicitly or by counteroffer or by the passage of a commercially reasonable period of time. The licensee is not permitted to initiate rounds of offer and counteroffer. Following the licensee's failure to accept a legitimately FRAND offer, negotiations of course may continue between the parties, but no longer under the FRAND framework. Instead, those negotiations revert to the framework of public patent law.

In contrast to this American veneration of transactional efficiency (and a concomitant abhorrence of ambiguity or euphemism), the bodies of contract law of other jurisdictions (in Europe and the rest of the world) evidently do not offer, and do not aspire to offer, such black-and-white rules on whether and when a contract has been formed.[12] For example, when and for whom does the duty of good faith negotiation commence, and how long does it remain in effect once an offer has

[12] For example, a discussion on contract formation under French law that predates the 2016 revisions of the Civil Code states:

> French law sees a contract as an agreement, and it shares with English law (and indeed all other Western systems) the analysis of that agreement in terms of offer and acceptance. The practical results of that analysis quite often, however, diverge from those found in English law, and where this is so it is usually because French law … adopts a more subjective approach.

Barry Nicholas, The French Law of Contract 61 (2d ed. 1992). Elsewhere, Nicholas discusses – again, before the 2016 revisions of the French Civil Code – the difference between English and French contract law at a higher level of abstraction:

> It is clear … that the analysis of contract in terms of a free agreement of wills (or, in English terms, a meeting of minds) is common to both the French and the English classical theories of contract and remains part of the common currency of both systems.
>
> Where the two systems differ … is partly in the intellectual rigour with which the analysis is carried through to detailed consequences, and partly in the way that agreement is understood: as a subjective meeting of two minds or as the objective appearance of agreement. English law usually favours the latter approach, as being the more practical and the more conducive to the certainty which commercial convenience demands, whereas French law inclines to the former, though sometimes with a corrective which yields much the same practical result as the objective approach.

Id. at 35. I would argue, for the reasons that I explain in this chapter, that it is erroneous as an empirical matter to assume that "much the same practical result" will occur when contract formation for the licensing of SEPs is analyzed under a FRAND or RAND obligation been made? Some scholars of French law impute to the duty to negotiate in good faith an explicitly noneconomic origin.[13] As one treatise on French law has observed, incompatible interpretations among scholars of the purpose and effect of the doctrine of good faith indicate that "the notion of good faith and its use by the courts is likely to remain contested."[14] If SEP holders, implementers, and their attorneys fail to recognize that the monochrome character of American contract law differs from the Technicolor character of contract law in many other nations, they will expose themselves to an unmarked hazard in SEP licensing negotiations and SEP litigation whenever American contract principles do not control.

controlled by French law than when American law (typically New York law) controls the interpretation of contract formation between the SEP holder and the implementer. For further analysis of offer and acceptance under French law before the 2016 revisions, see John Bell, Sophie Boyron, & Simon Whittaker, Principles of French Law 302–05 (2d ed. 2008). For analysis of contract formation under French law after the 2016 revisions, see Ruth Sefton-Green, *Formation of Contract: Negotiation and the Process of Agreement*, *in* The Code Napoléon Rewritten: French Contract Law after the 2016 Reforms 59 (John Cartwright & Simon Whittaker eds., 2017).

[13] Bell et al., *supra* note 12, at 334 ("[S]ome [French] jurists consider that the principle of good faith is a useful way for French contract law to be or to become more 'social', . . . allowing the Cour de cassation to 'promote a degree of good citizenship in the relationship of parties to a contract, this being preferable to the cynicism which an exclusively economic understanding of contractual relations could bring'. However, other jurists warn against the potentially subjective and uncertain nature of the concept, or deny the vision of contracts as 'a little society where each party works for a common good' on the basis that . . . 'contracts often appear as the result of a tension between antagonistic interests, the striking of a balance between divergent interests'. So, 'the duty of good faith does not oblige a person to protect the interests of another person to the detriment of his own interest, as some of the partisans of the unlikely notion of "contractual solidarity" contend'.") (footnotes omitted) (first quoting Denis Mazeaud, *La Politique Contractuelle de la Cour de Cassation*, *in* Libre Propos sur les Sources du Droit, Mélanges en l'Honneur de Philippe Jestaz 371, 382 (2006); then quoting François Terré, Philippe Simler, & Yves Lequette, Droit Civil: Les Obligations 443 (2005); and then quoting Philippe Malaurie, Laurent Aynès, & Philippe Stoffel-Munck, Les Obligations 373 (2007)); Nicholas, *supra* note 12, at 48 ("[W]here the Common law, in the interests of commercial convenience and the security of transactions, looks to the external appearance of consent, French law, influenced no doubt by the doctrine of the autonomy of the will and more concerned for justice in the individual case than for commercial expediency, often takes account of the true state of mind of one of the parties. . . . [Thus,] the requirement of good faith, though explicitly mentioned by the Code [Napoléon] only in connection with the performance of contracts, is introduced into the context of their formation under cover of the requirement of a genuine consent."); Sefton-Green, *supra* note 12, at 60 ("It could be said that good faith is a big empty envelope into which a lot of concrete circumstances can be folded."); Open Sessions Volume IV at 1111:9–18, Certain LTE- and 3G-Compliant Cellular Communications Devices, Inv. No. 337-TA-1138 (USITC Sept. 17, 2019) (Testimony of Bertrand Fages) ("Q [by Counsel for INVT SPE LLC, the SEP holder and complainant]. Under French law, what does good faith require? A. Under French law it's ultimately up to the judge to decide what French law is in the context of each case; but in concrete terms, act in good faith is making serious proposals, which are consistent with the economic value and the purpose of the contract, and generally, to adopt an active attitude to achieve successful negotiations.").

[14] Bell et al., *supra* note 12, at 334.

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That hazard exists in very practical business terms because ETSI plays such a dominant role in the setting of wireless standards, and its FRAND commitment is, of course, controlled by French contract law.[15] In contrast, New York law controls the RAND contract of another prominent SSO, the Institute of Electrical and Electronics Engineers (IEEE).[16] It is quite possible that the differences between French contract law and New York contract law – to take only one example – will produce substantively different conclusions about the legal duties owed under the FRAND or RAND contract in question. Indeed, the scope of a SEP holder's obligations and the scope of the rights granted to third-party beneficiaries by virtue of a FRAND or RAND contract depend on both that contract's actual language and the controlling law governing the interpretation (if needed) of that contract. The key point is that, whenever American contract law does not apply, to know when the negotiation has failed to achieve contract formation, we need a closing rule.

This perspective on contract formation causes me to disfavor and avoid using the terminology of "holdup" and "holdout" to describe the presence or absence of good faith during the negotiation to license SEPs pursuant to the FRAND contract. I find it simpler and more germane to ask whether, and when, the offeror and the offeree have discharged whatever duties they bear under the FRAND contract between the SEP holder and the SSO. What is called "holdout" is a manifestation of the failure of the controlling law to declare in a timely manner that the contract negotiations have become futile, such that the SEP holder has discharged its contractual duty to the SSO (and to the implementer as the third-party beneficiary of the SEP holder's FRAND contract with the SSO). Calling the problem "holdout" supplies an epithet, but it does nothing to help answer the legal or economic question; to the contrary, that nomenclature is arguably counterproductive in the sense that it falsely suggests that the SEP holder must make some further evidentiary showing that "holdout" has occurred before it may pursue its legal remedies under the national law of the country that issued the patents in suit.

To begin the task of reducing legal and economic ambiguity concerning the determination of whether a SEP holder and an implementer have conducted a FRAND licensing negotiation in good faith, I propose here the formulation of a specific activity rule and a specific closing rule when American contract jurisprudence does *not* control interpretation of the FRAND contract in question.

15 HTC Corp. v. Telefonaktiebolaget LM Ericsson, 12 F.4th 476, 484 (5th Cir. 2021) ("[The] FRAND commitment 'is "governed by the laws of France," and is "solely [] contractual [in] nature."'") (alterations in original) (quoting HTC Corp. v. Telefonaktiebolaget LM Ericsson, No. 6:18-CV-00243-JRG, 2019 WL 126980, at *3 (E.D. Tex. Jan. 7, 2019) (quoting European Telecommunications Standards Institute, ETSI Intellectual Property Rights Policy, Annex 6, § 12 (Apr. 3, 2019) [hereinafter ETSI IPR Policy], www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf)).

16 Institute of Electrical and Electronics Engineers [IEEE], IEEE-SA Standards Board Bylaws § 3, at 3 (Feb. 2022), https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/sb_bylaws.pdf.

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My proposed activity rule is that, in each round of offer and counteroffer – and to the extent that the SEP holder has not already discharged its contractual obligation to ETSI (such as by its already having made a legitimately FRAND offer at the very outset of the negotiation) – a party must revise its bid or ask price by the minimum agreed-upon increment for that party to be deemed still to be negotiating in good faith. My proposed closing rule is that a party will be deemed to have made its final offer or counteroffer if it does not, within a commercially reasonable amount of time after receiving an offer or counteroffer, sweeten its price relative to its price in the previous round of offer and counteroffer. These rules of market design are proposals, which will surely benefit from scrutiny and refinement by others, but these proposals should suffice to invite a needed discussion.

Considering how controversial and how consequential these issues have been in the licensing of SEPs for smartphones, I see no reason why they will prove to be simpler to resolve in the licensing of SEPs for connected cars, smart homes, and the multitude of other 5G devices that will constitute the Internet of Things.

Parties in litigation over SEPs in the United States and England routinely solicit the expert opinions of scholars on French contract law to assist the court's interpretation of a SEP holder's FRAND contract with ETSI. Yet, as I have remarked elsewhere, the public trial testimony, expert reports, and judicial decisions describing those expert opinions on French law cast doubt on the determinacy of French contract law.[17] An American observer might conclude that French contract law on its own is incapable of defining good faith, or at least that it is ill equipped to supply a definition. Principles defining good faith in the evidentiary records of these cases are simply not percolating through into the public domain to shed light on how parties should behave or how judges should judge. Economic insights from the field of mechanism design can cure that indeterminacy.

1. How Have EU Courts Interpreted the FRAND and RAND Obligations?

Notwithstanding the variation in due care as to the source of and content of a given FRAND or RAND obligation, what is clear is that US courts almost uniformly have been reluctant to conclude that the breach of a FRAND or RAND obligation amounts to a violation of antitrust law.

Contrast the experience in the United States with the experience in the European Union. Having become a favored jurisdiction for SEP enforcement, Germany has established itself as the lodestar in the European Union for the development of jurisprudence on the meaning of FRAND. Courts in Germany conclude that FRAND and RAND are synonymous, and that FRAND is simply a holistic concept ultimately rooted in EU competition law (as opposed to the particular contract between a particular holder of SEPs and a particular SSO acting on behalf of

[17] Sidak, *Judge Selna's Errors*, *supra* note 4, at 104–07.

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implementers, who are the intended third-party beneficiaries of that contract). When an implementer in patent litigation in Germany presents its statement of defense, it typically frames its arguments concerning violation of the FRAND obligation as emanating from Article 102 of the Treaty on the Functioning of the European Union (TFEU).[18] The differing interpretations of particular FRAND or RAND obligations under contract law collapse to a uniform interpretation of FRAND as defined by the Court of Justice of the European Union or national courts (or some combination thereof). This source of law or authority for purposes of interpreting the duties of a particular SEP holder pursuant to a specific FRAND or RAND contract is unsatisfying to an American lawyer or jurist, who might be tempted to ask: What treaty or statute or regulation or court decision made these variegated FRAND and RAND obligations synonymous with the jurisprudence of Article 102?

The approach in the European Union is quite different from saying, as one does in the United States, that the FRAND obligation is a contract that is unique to the SEP holder and the SSO; that that contract is not a uniform statute or even a standard-form contract; and that interpretation of that contract is influenced by choice of law. The stark fork in the road between the understanding of the FRAND obligation in Anglo-American law versus EU law has important practical consequences for licensing and for dispute resolution. Rarely (if ever) do courts in the European Union make a finding of economic fact that a particular offer is (or is not) FRAND because it does (or does not) repose within the bargaining range between a SEP holder and a particular implementer. To avoid making such detailed findings of economic fact, courts in the European Union tend instead to analyze whether the antiphonal negotiating conduct of the licensor and the potential licensee exhibits the good faith that *Huawei v. ZTE* requires.[19]

In the United States, advocates cannot properly treat every FRAND or RAND obligation as uniform and fail to specify the precise legal and economic questions that the court must answer. Expert economic testimony on whether a patent holder has discharged its FRAND or RAND obligation is relevant in a strict evidentiary sense only if the expert's instructions are sensitive to the language contained in a given SSO's bylaws. In contrast, in Germany, the "fair" and "reasonable" components of the FRAND obligation merge and require analysis of whether the SEP holder's offer falls within the bargaining range – or whether the SEP holder's conduct is "fair" and "reasonable" within the meaning of *Huawei v. ZTE*. With respect to the "nondiscrimination" component of the FRAND obligation, it seems likely that EU courts will uniformly engraft the meaning that "discrimination" has been given within the jurisprudence applying Article 102(c) of the TFEU onto every

[18] Consolidated Version of the Treaty on the Functioning of the European Union art. 102(c), Oct. 26, 2012, 2012 O.J. (C 326) 47.

[19] Huawei Techs. Co. v. ZTE Corp., Case C-170/13, ECLI:EU:C:2015:477 (July 16, 2015).

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FRAND or RAND contract. That is, courts in the European Union will likely find that a SEP holder's offer to license is discriminatory only if the offer (1) treats similarly situated parties in an unjustifiably dissimilar manner, and (2) the dissimilar treatment proximately causes a distortion of competition in a relevant market.

In FRAND litigation and arbitration, an attorney instructing an expert economic witness should tailor his instructions to ensure that the economic evidence is relevant to the mode of interpretation of FRAND that the particular court will apply. Doing so will avoid the presentation of expert testimony that is ultimately unhelpful to the finder of economic fact. Law firms must take care to give rudimentary instructions on the applicable legal principles within which the expert economic witness must frame an economic opinion if that opinion is to be relevant in an evidentiary sense to the question that the finder of fact must decide – as well as being not prejudicial, confusing, or misleading. Once opposing counsel has shown that a party has incorrectly instructed its economic expert on the controlling law (or has failed to correct the expert's own misconception of the controlling law), that expert economic witness cannot blithely ignore, or feign ignorance of, the controlling meaning of FRAND in a particular court.

Courts less accustomed to expert economic testimony (and which do not allow live cross-examination at trial, as is the case in Germany) need to scrutinize such testimony with greater skepticism and rigor than currently appears to be the norm. Does the expert economic witness tacitly hold the condescending view that legal distinctions are insignificant details that do not rise to being relevant considerations that properly inform an intellectually rigorous economic analysis, even when that analysis has been undertaken specifically for the purpose of assisting the court's resolution of a consequential legal dispute? Regardless of whether the expert economic witness can genuinely profess ignorance, plainly the eminent law firm responsible for retaining and instructing the expert cannot profess such ignorance in good faith.

2. Is There a Duty to Negotiate in Good Faith?

No American court deciding a dispute over SEPs has publicly explained the origin in French law of the duty to negotiate in good faith. In particular, no American court has explained why the implementer – as *the third-party beneficiary* to the SEP holder's FRAND contract with ETSI, not a party to that contract – has a duty to negotiate in good faith.[20] Indeed, judges and commentators take as given that the duty to negotiate in good faith applies symmetrically to the third-party beneficiary before contract formation between the SEP holder and the third-party beneficiary of

[20] Sidak, *Judge Selna's Errors*, *supra* note 4, at 102–07.

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the SEP holder's FRAND contract with ETSI.[21] Every judicial opinion is a public good that can shed light on the law.[22] If the proposition is uncontroversial that a duty of good faith and fair dealing applies to the negotiation between a SEP holder and an implementer of an ETSI standard, then it would be helpful for judges to explain for the benefit of those less perspicacious than they why and whence that duty arises.[23]

Reading ETSI's FRAND contract alongside the Civil Code of France, which specifies in Article 1104 that "[c]ontracts must be negotiated, formed and performed in good faith,"[24] supports at least the following conclusions concerning the duty to negotiate in good faith. For at least four reasons, these conclusions are not to the exclusion of other conclusions that might follow from French law or the law of other nations.

First, to the extent that the FRAND contract between the SEP holder and ETSI is enforceable under French law, the SEP holder must perform the obligations that arise from that FRAND contract in good faith. That is, the SEP holder has an obligation to ETSI to act in good faith in its preparedness to grant a license to an implementer that qualifies as an intended third-party beneficiary. The same conclusion would likely apply under American contract law, because the SEP holder that is offering to license its SEPs to an implementer is performing its contractual obligations under the FRAND contract; and American contract law, which of course is state law and therefore might vary across the United States, generally provides that parties must perform their contractual duties in good faith.[25]

Second, to the extent that the implementer is itself a SEP holder that has entered into a FRAND contract with ETSI, the implementer also has a duty under French

[21] In 2015, I observed:

> With respect to contract performance and enforcement, the Restatement [of Contracts] says that "[e]very contract imposes *upon each party* a duty of good faith and fair dealing . . ." It is not clear why this symmetry of obligations should give way to asymmetry of obligations at the stage of contract formation, assuming that a court is inferring that the common law duty of good faith and fair dealing encompasses contractual negotiations.

J. Gregory Sidak, *The Meaning of FRAND, Part II: Injunctions*, 11 J. Competition L. & Econ. 201, 217 n.67 (2015) (emphasis added) (citation omitted) (quoting Restatement (Second) of Contracts § 205 (Am. Law Inst. 1981)).

[22] Posner, *supra* note 11, at 760–62.

[23] Sidak, *Judge Selna's Errors*, *supra* note 4, at 107.

[24] Code Civ. [Civ. Code] art. 1104 (Fr.), *translated in* John Cartwright, Bénédicte Fauvarque-Cosson, & Simon Whittaker, *The Law of Contract, The General Regime of Obligations, and Proof of Obligations* art. 1104 (2016). "This provision is a matter of public policy." *Id.* This translation of the "provisions of the *Code civil* created by *Ordonnance* n° 2016-131 of 10 February 2016 . . . was commissioned by the *Direction des affaires civiles et du sceau, Ministère de la Justice, République française*." *Id.* at 1.

[25] Northwest, Inc. v. Ginsberg, 572 U.S. 273, 295 (2014) ("[M]ost States recognize some form of the good faith and fair dealing doctrine."); Sidak, *Judge Selna's Errors*, *supra* note 4, at 105–06 & nn. 23–27.

contract law to negotiate in good faith. Such a duty would typically arise when counterparties negotiate a cross-license, wherein the implementer offers to license to the SEP holder the implementer's own SEPs that are subject to a FRAND commitment to ETSI. For example, in *HTC v. Ericsson*, Chief Judge Rodney Gilstrap of the Eastern District of Texas found that HTC, the implementer, had a duty to negotiate a cross-license in good faith because it was also a SEP holder that had entered into its own FRAND contract with ETSI.[26] Again, American contract law would support a similar conclusion. An implementer that itself had executed a FRAND contract (because it is also a SEP holder) has a contractual duty to perform in good faith the obligations that it accepted pursuant to that FRAND contract.[27]

Third, to the extent that the negotiation over SEPs between the SEP holder and the implementer culminates in the execution of a license agreement that is subject to the Civil Code of France (or to some equivalent law of a different nation that imposes a duty comparable to Article 1104 of the Civil Code of France), both the SEP holder and the implementer are obligated to negotiate their contract in good faith, because the Code explicitly directs parties to act in good faith when *negotiating* a contract.

Fourth, to the extent that the FRAND contract between the SEP holder and ETSI is properly characterized as *un accord de principe* (an agreement in principle), as a matter of French law, the *accord de principe* might impose the duty on both the SEP holder and the implementer to negotiate in good faith.[28]

[26] HTC Corp. v. Telefonaktiebolaget LM Ericsson, No. 6:18-CV-00243-JRG, 2018 WL 6617795, at *5–6 (E.D. Tex. Dec. 17, 2018).

[27] It is worth questioning whether the negotiation of a license to SEPs declared essential to ETSI is beyond the scope of the *performance* of the SEP holder's FRAND contract with ETSI to be "prepared to grant" a license, and thus outside the scope of ETSI's choice-of-law provision. I leave the task of answering this question to others more familiar with French law.

[28] Certain Wireless Devices with 3G Capabilities and Components Thereof, Inv. No. 337-TA-800, Initial Determination at 422 (USITC June 28, 2013) ("The parties agree that the ETSI IPR Policy is governed by French law. Under French law, the type of obligation set forth in the ETSI undertaking is best described as *un accord de principe* (agreement in principle). This imposes on both negotiating parties a duty to negotiate in good faith. It does not, however, impose an obligation actually to conclude a contract . . . In this regard, French law is consistent with U.S. contract law, under which a generalized 'agreement to agree' is unenforceable, but parties may enter into binding agreements to negotiate.") (citations omitted); Certain LTE- and 3G-Compliant Cellular Communications Devices, Inv. No. 337-TA-1138, Open Sessions Volume IV at 1106:8–21 (USITC Sept. 17, 2019) (McNamara, ALJ) (Testimony of Bertrand Fages) ("Q [by Counsel for INVT SPE LLC, the SEP holder and complainant]. What is an *accord de principe*, or agreement in principle under French law? A. An agreement in principle is characterized by the fact that it entails no obligation to contract, but only an obligation to negotiate in good faith; and this obligation to negotiate in good faith is only an obligation of means that permits behavior, consists of having an attitude in order to achieve successful negotiations by conducting them fairly, and we have a decision from the Paris Court of Appeal that puts it very clearly by saying that there is no obligation to conclude but only a commitment to negotiate."); Bell et al., *supra* note 12, at 305 ("Sometimes parties to contractual negotiations make preliminary agreements before concluding any ultimate contract. French law's attitude to these is generally more favourable than is English law's owing in particular to the absence of

However, if the SEP holder and an implementer are not negotiating in the shadow of the Civil Code of France, and if that implementer has not entered into its own binding FRAND contract with ETSI, it is far from apparent what source of law or what equitable principle would force the implementer to negotiate in good faith. In particular, I am aware of no state in the United States whose contract law imposes a general duty to negotiate in good faith, as does Article 1104 of the Civil Code of France. As Judge Posner explained in 1991, the general contractual duty to negotiate before contract formation in good faith in the United States is so vanishingly small as to be virtually nonexistent.[29] In other words, under American contract law principles, an implementer has no duty to negotiate in good faith a license agreement for FRAND-committed SEPs. If the FRAND agreement does not create a contractual duty to negotiate a

the requirement of consideration . . . A very important example of pre-contractual agreements which are enforced as contracts are 'unilateral promises to contract' (*promesses unilatérales de contrat*). Here, a person promises to contract on particular terms with another at the latter's option, this promise being binding once accepted. Of more uncertain status are 'agreements in principle' (*accords de principe*) which usually involve an agreement by the parties on certain matters and that they will continue to negotiate towards final contract . . . Even in the absence of any preliminary agreement as to the course or conduct of negotiations, French law holds the parties to a standard of proper conduct, [which is] referred to either positively in terms of the requirements of good faith or negatively in terms of the parties having 'abused their right' to break off negotiations before a contract is concluded.") (footnotes omitted).

29 Market St. Assocs. Ltd. v. Frey, 941 F.2d 588, 593–94 (7th Cir. 1991) ("In fact the law contemplates that people frequently will take advantage of the ignorance of those with whom they contract, without thereby incurring liability. The duty of honesty, of good faith even expansively conceived, is not a duty of candor. You can make a binding contract to purchase something you know your seller undervalues.") (citations omitted); *id.* at 594 ("But it is one thing to say that you can exploit your superior knowledge of the market – for if you cannot, you will not be able to recoup the investment you made in obtaining that knowledge – or that you are not required to spend money bailing out a contract partner who has gotten into trouble. It is another thing to say that you can take deliberate advantage of an oversight by your contract partner concerning his rights under the contract. Such taking advantage is not the exploitation of superior knowledge or the avoidance of unbargained-for expense; it is sharp dealing. Like theft, it has no social product, and also like theft it induces costly defensive expenditures, in the form of overelaborate disclaimers or investigations into the trustworthiness of a prospective contract partner, just as the prospect of theft induces expenditures on locks."); *id.* at 595–96 ("The emphasis we are placing on postcontractual versus precontractual conduct helps explain the pattern that is observed when the duty of contractual good faith is considered in all its variety, encompassing not only good faith in the *performance* of a contract but also good faith in its *formation* and in its *enforcement*. The formation or negotiation stage is precontractual, and here the duty is minimized. It is greater not only at the performance but also at the enforcement stage, which is also postcontractual . . . At the formation of the contract the parties are dealing in present realities; performance still lies in the future. As performance unfolds, circumstances change, often unforeseeably; the explicit terms of the contract become progressively less apt to the governance of the parties' relationship; and the role of implied conditions – and with it the scope and bite of the good-faith doctrine – grows.") (emphasis in original) (citations omitted).

license in good faith, then it appears American contract law will not itself create such a duty.[30]

Despite not having a legal obligation to negotiate in good faith under American contract law principles, an implementer that fails to negotiate in good faith might nevertheless face legal consequences for such conduct. For example, a US court might order the implementer to pay enhanced damages for willful infringement of SEPs.[31] Similarly, an implementer that fails to negotiate in good faith might forfeit its right, as an intended third-party beneficiary of a FRAND contract, to receive a FRAND offer. As a separate matter, whether or not the implementer has a preexisting duty to negotiate in good faith with the SEP holder,[32] the implementer could also incur liability in tort law for fraud or deceit.

3. Why Does It Matter Whether a Duty Exists to Negotiate in Good Faith?

My purpose in this chapter is not to attempt to answer the preceding questions concerning choice-of-law principles and the source of the possible duty, borne by a third-party beneficiary of the SEP holder's FRAND contract with ETSI, to negotiate a license to the committed SEPs in good faith. Instead, I simply and briefly expose the ambiguity of French law concerning the certainty of whether and when contract formation has occurred in FRAND cases, as well as the substantive implications of that ambiguity.[33] And I now submit that the solution to overcoming that ambiguity lies in reframing the problem as one of efficient market design.

[30] I do not attempt to answer the question of whether the duty to negotiate in good faith under contract law (relevant to the license negotiation) is different (narrower or broader) than the contractual duty of good faith negotiation that is presumed to exist under the FRAND contract.

[31] J. Gregory Sidak, *Enhanced Damages for Infringement of Standard-Essential Patents*, 1 Criterion J. Innovation 1101 (2016).

[32] Furthermore, to the extent that a court were to find ETSI's FRAND commitment *not* to be contractual, there is reason to doubt that the SEP holder's promise could have binding effect under French contract law, which does not recognize promissory estoppel as an available claim. In 2019, Yves-Marie Laithier, a professor of French contract law at the Université Paris 1 Panthéon-Sorbonne, testified in a pretrial hearing in u-blox v. InterDigital that "[t]he doctrine of promissory estoppel is unknown in French contract law. It is indeed untranslatable in French." Declaration of Prof. Yves-Marie Laithier in Support of Motion to Dismiss at 2, u-blox AG v. InterDigital Inc., No. 19-cv-00001-CAB-BLM (S.D. Cal. Feb. 25, 2019), ECF No. 50-5. That conclusion comports with the understanding that promissory estoppel "is peculiar to common law systems." *Id.* (quoting John Cartwright, Formation and Variation of Contracts § 10-01 (2d ed. 2018)).

[33] That ambiguity is exemplified by the opposing expert reports of two French law scholars filed in late 2018 and early 2019 in one such case. *Compare* Expert Report of Dr. Philippe Stoffel-Munck ¶ 121, at 29, Koninklijke KPN N.V. v. Sierra Wireless, Inc., No. 17-090-LPS-CJB (D. Del. Nov. 20, 2018) ("[T]he Declarant must grant a license on FRAND terms and must negotiate in good faith irrespective of the outcome of their negotiations and, a fortiori, irrespective of the binding force that their future agreement will be given or not in retrospect. In any event, they must answer for any loss caused to the other party by any breach of their duty to grant a license on FRAND terms and to negotiate in good faith."), ECF No. 205-1, *and*

That such questions would arise in SEP disputes tells us that a rift exists between American contract law and French contract law on matters of contract formation, and that the existence of that divide, much less the depth of its economic significance, again, has eluded courts and scholars. American law, it would seem, differs from the law of much of the rest of the world, evidently even common law jurisdictions, with respect to the negotiation and formation of a contract. American law presents a regimented view of when offer, acceptance, and contract formation each occurs. A more European approach evidently envisions an elongated process permitting multiple rounds of offer and counteroffer. Yet that European process lacks any explicit rule for determining whether a given offer or counteroffer is sufficiently sweetened, relative to the prior offer or counteroffer, to contribute materially to closing the bid–ask spread separating the parties. And that European process also lacks any explicit rule declaring when the negotiation must end because the parties have reached an impasse and therefore deserve to have it recognized as a matter of law that they have failed in their efforts to form a contract.

The quiddity of this characteristic, which materially differs in degree between American contract law and European contract law, I will call *expedition*. It neatly illustrates how Americans and citizens of other advanced nations sometimes understand quite differently a concept so foundational to legal or economic reasoning that it is commonly presumed to admit no dispute. Expedition is the impatient foot tapping of the marketplace. The enemy of indecision, dithering, sloth, torpor, and indolence, expedition despises dilatory guile and circumlocution. In the arena of commerce and all its works and days of hands, expedition is how one acts upon Seneca's admonition: "It is not that we have a short time to live, but that we waste a lot of it."[34]

Being expeditious in the licensing of SEPs increases economic welfare in both the short run and the long run. In the short run, expedition reduces ambiguity, facilitates contract formation, and reduces the need to resort to litigation (as well as the opportunity to use litigation for strategic reasons). In the long run, in the context of licensing SEPs, expedition hastens the creation of consumer surplus and producer surplus from the commercialization of products practicing a new voluntary standard.

The presence or absence of efficient activity rules and closing rules could spell the difference between an SSO's success or its failure and withering away. There has

Reply Expert Report of Dr. Philippe Stoffel-Munck ¶ 77, at 16, Sierra Wireless, No. 17-090-LPS-CJB (D. Del. Feb. 3, 2019) ("Where the negotiations form part of a binding agreement, the duty of good faith becomes more demanding, as comes into play the duty to *perform* in good faith.") (emphasis in original), ECF No. 205-1, *with* Rebuttal Expert Report of Dr. Vernon Valentine Palmer ¶ 133, at 39–40, Sierra Wireless, No. 17-090-LPS-CJB (D. Del. Jan. 8, 2019) ("[T]o the extent any good faith obligation exists, it is simply one to avoid committing a clear abuse of the liberty to negotiate freely – an obligation that would not be understood to require that a debtor put aside its own interests in favor of another party.").

34 Seneca, On the Shortness of Life 1 (C.D.N. Costa trans., 1997) (49 A.D.).

been an evident poverty of foresight in regard to designing the *end* of the process of licensing SEPs. In the absence of some other scapegoat coming forward, I will blame that deficiency of market design on the engineers for having failed to recognize the economic and legal significance of setting in place the mechanism necessary to ensure the expeditious completion of negotiations between a SEP holder and third-party beneficiaries of the SEP holder's FRAND contract. Although we can infer that the vast majority of bilateral negotiations for the licensing of SEPs produce successful commercial agreements, those that do not have cost billions of dollars in litigation over the past decade.

B. *Activity Rules, Closing Rules, and "Best Practices" in Negotiations over FRAND-Committed SEPs*

I have previously argued that time is of the essence in the implementation of a standard – in particular because to waste time in the introduction of an entirely new generation of products featuring standard-dependent technological innovations is to harm the public interest by sacrificing consumer surplus irreparably.[35] To the extent that one can properly impute a duty (or covenant) to negotiate in good faith to an intended third-party beneficiary of ETSI's FRAND contract with a particular SEP holder, that duty reflects the understanding that a public interest inheres in the expeditious negotiation of SEP licenses. Whether the implementer's behavior after receiving a legitimately FRAND offer adheres to the standard of good faith will depend ultimately on how quickly the implementer seeks to close the bid–ask spread and converge on an agreement – which is to say, contract formation.[36] Following that interpretation to its logical conclusion, the point at which the implementer ceases to sweeten its counteroffer from one round of the negotiation to the next defines the point of impasse.

Implicit in this rule is the understanding that the parties also must define how long a given round lasts during their negotiation. How long may a party take to sweeten its bid or ask? If the parties provide no answer of their own to this question, the default answer becomes "a commercially reasonable amount of time." But, rather than have a court rule what amount of time is commercially reasonable, the parties can create considerable value by agreeing on a framework that is both more precise and more expeditious than what is merely commercially reasonable.

[35] J. Gregory Sidak, *What Makes FRAND Fair? The Just Price, Contract Formation, and the Division of Surplus from Voluntary Exchange*, 4 Criterion J. Innovation 701, 725–27 (2019) [hereinafter *What Makes FRAND Fair?*]; Sidak, *The FRAND Contract*, supra note 9, at 13–14 & n.47 (citing J. Gregory Sidak, *Irreparable Harm from Patent Infringement*, 2 Criterion J. Innovation 1 (2017); J. Gregory Sidak, *Is Harm Ever Irreparable?*, 2 Criterion J. Innovation 7, 10 (2017) (Inaugural Address for the Ronald Coase Professorship in Law and Economics, Tilburg University, Tilburg, The Netherlands (Sept. 16, 2011)).

[36] Sidak, *The Meaning of FRAND, Part II: Injunctions*, *supra* note 21, at 218.

The obvious analogy here is to the activity charge required of a bidder to maintain its right to keep bidding in the simultaneous multi-round ascending auction for 3G spectrum licenses in the United Kingdom. Economist Paul Klemperer of Oxford, who advised the UK government, explains:

> Our design entailed multiple rounds of simultaneous bids. In the first round, each bidder makes a bid on one license of its own choice. To remain in the auction, a bidder must be "active" in every subsequent round. An active bidder either currently holds the top bid on a particular license, or else raises the bid on a license of the bidder's choice by at least the minimum bid increment. A bidder who is inactive in any round is eliminated from the rest of the auction.[37]

As I observed at the opening of this part, governmental agencies around the world have promoted "best practices" in negotiations over FRAND-committed SEPs. The most useful thing left undone in such statements of best practices is to endorse the concept of an activity charge for good faith FRAND negotiations, and then to identify an unambiguous economic methodology for determining the minimum bid increment by which an implementer must sweeten its counteroffer to the SEP holder's legitimately FRAND offer for the implementer to be deemed still to be negotiating in good faith.

The next most useful thing left undone in statements of best practices for good faith FRAND negotiation is to identify an unambiguous economic methodology for determining when the negotiation has ended in failure. Again, it bears emphasis that this question is legally relevant only for FRAND obligations not controlled by American-style contract principles of offer and acceptance – which, I have explained earlier, inherently have the admirable (but evidently underappreciated) quality of unambiguously defining a closing rule for a bilateral negotiation.[38] Evan Kwerel, a highly respected economist who spent a career at the Federal Communications Commission and made important contributions to the design and execution of American spectrum auctions there, explained that "[t]he closing rule was one of the major [market] design issues for a simultaneous auction" for spectrum in the United States.[39] Stanford professors Robert Milgrom and Robert Wilson, who shared the Nobel Prize in economics in 2020 for their work on auction theory, "proposed a simultaneous closing rule whereby the auction closes on all licenses only after a round has passed with no bidding on any license."[40] In contrast, conspicuously absent from the current conception of the FRAND negotiation is any guidance on when it reaches its end in terms of rounds of offer and counteroffer. Instead, the

[37] Klemperer, *supra* note 8, at 181–82; Milgrom 2004, *supra* note 8, at 5–6, 14 (discussing the activity rule used in US spectrum auctions in 1994).

[38] Sidak, *The FRAND Contract*, *supra* note 9, at 15–19.

[39] Evan Kwerel, *Foreword*, *in* Milgrom 2004, *supra* note 8, at xvii.

[40] *Id.*; Milgrom 2004, *supra* note 8, at 267 ("The auction *closing rule* is especially important: the [simultaneous ascending] auction ends only after a round in which there are no new bids on any license.") (emphasis in original).

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negotiation is like a baseball game with an infinite number of innings, or a poker game in which a player may remain in the hand without calling his opponent's bet.

Because of the failure of SSOs or courts or other institutions in positions of authority to impose both an activity rule and a closing rule, a contentious negotiation for a FRAND license, if not controlled by the law of a jurisdiction having American-style principles concerning contract formation, will regrettably resemble Zeno's Dichotomy paradox. The journey's end becomes ever closer in incrementally smaller half steps, but it is never reached.

II. WHAT MAKES FRAND FAIR?

SSOs generally permit each SEP holder to set a FRAND or RAND royalty for its SEPs through private bilateral negotiations with each implementer, rather than require the SEP holder to post tariffed rates for all customers. Such voluntary exchange benefits both parties, who divide their aggregate gains from trade, which economists call surplus.[41] This economic principle – that voluntary exchange is mutually beneficial – is as profound as it is simple, and for that reason, economists call it "The Fundamental Theorem of Exchange."[42]

In any negotiation, the total surplus from a successful transaction is equivalent to the bargaining range – the distance between the buyer's maximum willingness to pay and the seller's minimum willingness to accept. Put differently, the gains from trade (that is, the gains from voluntary exchange) consist of the sum of consumer surplus and producer surplus.[43] As Jack Hirshleifer, Amihai Glazer, and David Hirshleifer emphasize in their pellucid undergraduate textbook on price theory, this terminology about consumption and production should not detract from the essential characteristic of voluntary exchange: "The names of these measures are somewhat misleading. The benefits stem *from trading*, not from consuming or producing. Instead of Consumer Surplus and Producer Surplus one should, properly speaking, refer to Buyer Surplus and Seller Surplus."[44] Elsewhere within economics, auction theory uses still other terminology – the reserve price or

[41] J. Gregory Sidak, *Fair and Unfair Discrimination in Royalties for Standard-Essential Patents Encumbered by a FRAND or RAND Commitment*, 2 Criterion J. Innovation 301, 333–34 (2017); J. Gregory Sidak, *Bargaining Power and Patent Damages*, 19 Stan. Tech. L. Rev. 1, 20–22 (2015).

[42] Jack Hirshleifer, Amihai Glazer, & David Hirshleifer, Price Theory and Applications: Decisions, Markets, and Information 203 (7th ed. 2005).

[43] *Id*. at 203–04.

[44] *Id*. at 204 n.4 (emphasis in original); Armen A. Alchian & William R. Allen, Exchange and Production: Competition, Coordination, and Control 48–49 (3d ed. 1983) (demonstrating that the total surplus in a negotiation is the sum of the *seller's* gain from trade and the *buyer's* gain from trade).

reservation price – to identify the same concepts, respectively, of the seller's minimum willingness to accept and the buyer's maximum willingness to pay.[45]

One question regarding the bilateral negotiation of SEPs on FRAND terms has received surprisingly little attention in either court decisions or scholarly writings: What is a *fair* division of the surplus generated by a voluntary negotiation successfully concluded between the SEP holder and the implementer?[46]

A. *Defining the Fair Division of Surplus*

John Rawls famously argued that "fair" means "just."[47] "Justice as fairness," he asserted, "is an example of … a contract theory."[48] Rawls argued that "[t]he word 'contract' suggests," among other things, "the condition that the appropriate division of advantages must be in accordance with principles acceptable to *all*

45 Ian Steedman, *Reservation Price and Reservation Demand*, *in* 4 The New Palgrave: A Dictionary of Economics 158 (John Eatwell, Murray Milgate, & Peter Newman eds., 1987); Klemperer, Auctions: Theory and Practice, *supra* note 8, at 18, 109, 112; Milgrom 2004, *supra* note 8, at 9–11; Robert L. Phillips, Pricing and Revenue Optimization 46 (Stanford University Press 2005); Robert S. Pindyck & Daniel L. Rubinfeld, Microeconomics 393, 510–11 (9th ed. 2018); John G. Riley, Essential Microeconomics 451–56 (2012); Garrett J. van Ryzin, *Models of Demand*, *in* The Oxford Handbook of Pricing Management 340, 342–43 (Özalp Özer & Robert Phillips eds., 2012).

46 Two handbooks published by the Cambridge University Press concerning SEPs do not explain how fairness constrains the calculation of a FRAND royalty. Patent Remedies and Complex Products: Toward a Global Consensus (C. Bradford Biddle et al. eds., 2019); The Cambridge Handbook of Technical Standardization Law: Competition, Antitrust, and Patents (Jorge L. Contreras ed., 2017).

47 John Rawls, A Theory of Justice 11 (rev. ed. 1999) (1971); John Rawls, Justice as Fairness: A Restatement (Erin Kelly ed. 2001); John Rawls, *Justice as Fairness: Political Not Metaphysical*, 14 Phil. & Pub. Aff. 223 (1985). Rawls' biographer, Thomas Pogge, reminds us that Rawls began A Theory of Justice with this proposition: "Justice is the first virtue of social institutions." Thomas Pogge, John Rawls: His Life and Theory of Justice 28 (Michelle Kosch trans., 2007) (quoting Rawls, A Theory of Justice, *supra* note 47, at 3). Pogge then explains how this proposition relates to the making and keeping of promises. By referring to "social institutions,"

> Rawls means to refer to the practices and rules that structure relationships and interactions among agents. This sense [of Rawls' use of "social institutions"] is exemplified by a social institution of promising. Its rules lay down what interactions between two agents count as creating a promise, what promisee conduct (if any) counts as releasing the promisor from the promise, what circumstances (if any) can be invoked as justification or excuse for nonperformance, and so on.

Id. By Pogge's account, Rawls' *Theory of Justice* has greater relevance to contract interpretation than might immediately appear to be the case for a book on political philosophy.

48 Rawls, A Theory of Justice, *supra* note 47, at 14; *id*. at 14–15 ("The merit of the contract terminology is that it conveys the idea that principles of justice may be conceived as principles that would be chosen by rational persons, and that in this way conceptions of justice may be explained and justified.").

parties."[49] One would expect the same of the FRAND contract. How can we go about imputing to the fairness component of the FRAND contract – a meaning that is intellectually rigorous in both legal and economic respects?

This question of the meaning of a fair price turns out to have very real legal ramifications in the present day. Rarely do I disagree with Judge Posner, but I do with respect to his view that "fair" is surplusage in the FRAND contract. Judge Posner, sitting by designation as the trial judge in *Apple, Inc. v. Motorola, Inc.* in 2012 in the Northern District of Illinois said that, in the context of FRAND, "the word 'fair' adds nothing to 'reasonable' and 'nondiscriminatory.'"[50] My previous writings have followed this convention of making no legal or economic distinction between FRAND and RAND royalties, though I have never excluded the possibility that someone might eventually make a compelling argument for why "fair" is not a throwaway word for parties to insert into a contract.[51] And so, for example, I have previously analyzed at length the differences between actual FRAND contracts and actual RAND contracts with respect to how fairness creeps into the constraint to license SEPs on nondiscriminatory terms.[52] This part of this chapter will show why courts should take the distinction between FRAND contracts and RAND contracts more seriously.

More than 30 years ago, Robert Frank of Cornell University proposed a precise economic definition that is directly relevant to the question of what makes a FRAND royalty fair:

> Using the notions of reservation price and surplus, we can construct the following operational definition of a fair transaction: A *fair transaction is one in which the surplus is divided (approximately) equally. The transaction becomes increasingly unfair as the division increasingly deviates from equality*.[53]

Frank then explained the problem that unfairness presents: "People will sometimes reject transactions in which the other party gets the lion's share of the surplus, even though the price at which the product sells may compare favorably with their own reservation price."[54]

[49] *Id.* at 15 (emphasis added). I have elsewhere traced my theory of fairness to the writings on the just price by Saint Thomas Aquinas. Sidak, *What Makes FRAND Fair?*, *supra* note 35, at 701–02, 710–21.

[50] 869 F. Supp. 2d 901, 912 (N.D. Ill. 2012), *rev'd in part on other grounds*, 757 F.3d 1286 (Fed. Cir. 2014). Judge Marsha Berzon previously wrote for the Ninth Circuit that a FRAND obligation was "legally equivalent" to a RAND obligation. Microsoft Corp. v. Motorola, Inc., 696 F.3d 872, 877 n.2 (9th Cir. 2012).

[51] Sidak, *Fair and Unfair Discrimination in Royalties for Standard-Essential Patents Encumbered by a FRAND or RAND Commitment*, *supra* note 41, at 308.

[52] *Id.* at 308–11.

[53] Robert H. Frank, Passions within Reason: The Strategic Role of the Emotions 165 (1988) (emphasis in original).

[54] *Id.* at 167 (emphasis suppressed).

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This reasoning is very close to the conclusion I had reached before benefiting, late in the process of revising an earlier incarnation of this text over the course of several years, from reading Frank's 1988 book. Frank and I each find ourselves using Judge Posner as our foil, though for different reasons. Frank criticized Judge Posner's writings through the mid-1980s, as denying what Frank argued was the considerable explanatory power of fairness considerations in law and economics.[55] In contrast, I gently chide Judge Posner for overlooking roughly 25 years later that, by the private ordering of contract law, some SSOs had chosen to impose an obligation of fairness so that (according to my economic interpretation) those SSOs could nudge parties into exercising the degree of moderation in their negotiation demands that is necessary to achieve contract formation reliably and expeditiously.

The irony is that my interpretation of why the word "fair" must have an independent meaning within the FRAND contract is quintessentially Posnerian: A division of surplus that is perceived by both parties to be fair maximizes the probability of contract formation over some defined time horizon, which in turn immediately benefits the parties to the contract. Thus, fairness clearly promotes static allocative efficiency. Moreover, across time the fairness constraint on the division of surplus also benefits countless consumers, whom the grand edifice of the FRAND contract is surely intended to benefit (though not necessarily by the formal machinery of conferring on those consumers legally enforceable rights of a third-party beneficiary, as the FRAND contract does confer on implementers). As Joseph Schumpeter taught us, it is the consumption of innovative products in the future that delivers radical – not marginal – gains in consumer surplus.[56] Thus, the fairness constraint promotes dynamic efficiency as well.

[55] Frank argues that in "the self-interest model," which he identifies with Judge Posner,

> the division of the surplus simply plays no role in determining whether a transaction will take place. It will occur provided each party gets some positive share of the surplus, no matter how small. When Posner says fairness "has no content," this feature of the traditional model must be at least in part what he has in mind. Yet, as we will presently see, concerns about fairness repeatedly cause people to reject transactions with positive surplus.

Id. (attributing Judge Posner's quotation to Paul Barrett, *Influential Ideas: A Movement Called "Law and Economics" Sways Legal Circles*, WALL ST. J. 1, 16 (Aug. 4, 1986). Frank argues that Judge "Posner and other rationalists would hardly deny that people *say* they care about fairness [,] [b]ut hardheaded economists treat such statements as mere verbiage, devoid of any power to predict behavior." *Id*. (emphasis in original).

[56] J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPETITION L. & ECON. 581, 602 (2009) ("Dynamic competition is powered by the creation and commercialization of new products, new processes, and new business models. As [Joseph] Schumpeter said, competition fueled by the introduction of new products and processes is the more powerful form of competition: 'competition from the new commodity, the new technology, the new source of supply, the new type of organization – competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the output of existing firms, but at their foundations and their very lives.' Advocates of strong competition policy must surely favor dynamic competition, for static competition is anemic in

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In this respect, Posner's emphasis on efficiency and Frank's emphasis on fairness are reconcilable. A lopsided division of surplus is a cost imposed on efficient transactions to the extent that it prevents some otherwise promising negotiations from achieving successful contract formation; if that cost can be eliminated or mitigated, a larger number of efficient transactions will occur. Therefore, regardless of whether one prefers to call it a quest for fairness or a quest for efficiency, an SSO's constraint on the SEP holder that a royalty for its SEPs be fair is a privately ordered feature of contract – a self-imposed cattle prod – that contributes to a result that proponents of fairness and proponents of efficiency can both applaud.

B. *Fairness and Contract Formation*

One can formalize a simple theory of fairness and contract formation. Imagine a decision tree depicting the expected surplus of a contract negotiation as the sum of the expected values of two mutually alternative outcomes: $EV = pS + (1 - p)0$, where p is the probability of contract formation and S is the surplus created by a successful transaction. The size of the surplus S is separately identified by the bargaining range, which is bounded by the reservation prices of the parties to the negotiation. But the expected value of the surplus is necessarily smaller than S because the division of the surplus might cause one of the parties to walk away. A simple and intuitive formulation of the relationship comes from defining as R the ratio of the seller's share of the surplus (X) to the buyer's share of the surplus (Y): $R = X / Y = X / (1 - X)$. R is bounded below by zero and above by infinity. As R approaches zero, p approaches zero. As R approaches infinity, p again approaches zero. In either case, it becomes more likely that contract formation will fail, and consequently the parties will forfeit the surplus from the transaction.

At this point, it is instructive to consider the Ultimatum Game, a bargaining game in which a player makes a single take-it-or-leave-it offer, rather than multiple offers and counteroffers.[57] The game ends in either an agreement to the unaltered terms of the first offer or no agreement at all. If the second party rejects the offer, neither party benefits – the first party does not keep any portion of the asset but rather forfeits it all. Thus, both parties have an incentive to agree, and the division of surplus (which in this particular game is assumed to be a windfall, not a return on either party's investment) will depend on a fair offer having been made. As I previously explained in 2013, the Ultimatum Game is interesting in analyzing the FRAND contract not because a FRAND negotiation represents an Ultimatum Game.[58] After all, in

comparison.") (quoting Joseph A. Schumpeter, Capitalism, Socialism and Democracy 8 (1942)).

57 Richard H. Thaler, *Anomalies: The Ultimatum Game*, 2 J. Econ. Persp. 195 (1988).

58 J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. Competition L. & Econ. 931, 1047 (2013). In 2013, I said that the Ultimatum Game sheds light on the reasonableness of an offer as well. *Id*. I no longer believe that proposition to be correct. I have concluded instead

FRAND licensing, there are typically repeated rounds of offer and counteroffer, the identities of the parties are known (perhaps because the parties have previously negotiated a licensing contract), and the reputation of the players matters because they will face the prospect of repeated play in subsequent licensing over future standards. Instead, the Ultimatum Game is interesting for FRAND licensing because the results of economic experiments based on the Ultimatum Game shed light on which divisions of surplus the parties to a stylized negotiation would consider fair. Surveying the experimental economics literature as it existed in 2000, Ernst Fehr and Simon Gächter reported that "[a] robust result in [the Ultimatum Game] experiment, across hundreds of trials, is that Proposers who offer the Responder less than thirty percent of the available sum are rejected with a very high probability."[59]

If there are any positive spillovers for society as a whole from successful contract formation, as there of course would be if the contract is one for the licensing of patents essential to practice an industry standard, then those externalities are forfeited as well when the negotiation collapses. In contrast to the scenarios of negotiation impasse that I previously described, as R goes to one, p approaches one, and thus contract formation becomes increasingly certain. An impartial spectator nudging the parties to maximize the expected value of the surplus of their contemplated transaction would prescribe "maximize p with respect to R," since S is already exogenously determined.

Although any possible division of the surplus created by voluntary exchange is mutually beneficial, that fact does not imply that every price along the bargaining range (which defines the locus of "reasonable" royalties) is equally likely to yield an agreement. How does a given split of the surplus between the SEP holder and the implementer influence the probability of their successful contract formation within a specified period of time? One interpretation of a fair royalty is that it leads more expeditiously to contract formation than some other division of the gains from trade. That is, the fairness component of the FRAND contract between the SEP holder and the SSO takes on independent meaning by giving teeth to the proposition that time is of the essence in achieving contract formation between the SEP holder and the implementer. Fairness promotes economic efficiency in the sense of hastening

that the reasonableness component of the FRAND (or RAND) obligation concerns the identification of the size of the surplus, not the question of how the parties will find it mutually acceptable to divide the surplus. Sidak, *What Makes FRAND Fair?*, *supra* note 35, at 708 n.30.

59 Ernst Fehr & Simon Gächter, *Fairness and Retaliation: The Economics of Reciprocity Source*, 14 J. Econ. Persp. 159, 161 (2000) (citing Werner Güth, Rolf Schmittberger, & Bernd Schwarze, *An Experimental Analysis of Ultimatum Bargaining*, 3 J. Econ. Behavior & Org. 367 (1982); Colin Camerer & Richard Thaler, *Anomalies: Ultimatums, Dictators and Manners*, 9 J. Econ. Persp. 209 (1995); Alvin Roth, *Bargaining Experiments*, in 1 The Handbook of Experimental Economics 253 (Alvin E. Roth & John H. Kagel eds., 1995)). A 29–71 split of the surplus would correspond to a value of R equal to 0.41.

voluntary exchange, which is the prerequisite to the expeditious exploitation of the standard.

C. *Dividing Surplus Fairly*

The probability of a successful voluntary exchange increases as each party signals its willingness to accept a lesser share of the surplus that the transaction will create. Thus emerges a simple understanding of fairness, which can be expressed in comparative terms: The price corresponding to a given bilateral division of the surplus from a voluntary exchange is fairer than the price corresponding to some alternative bilateral division of that surplus if the first division is more likely than the second to lead the parties to agree to a successful transaction within some specified period of time.

My proposed definition of a fair price echoes, but is not identical to, certain themes found in the economic literature examining justice and fairness. Most notably, my definition resembles the proposition that fairness requires the approximately equal division of surplus, which Robert Frank proposed in 1988 in *Passions within Reason*.[60] However, my rationale for that definition differs from what I understand to be Frank's reasoning.

1. The Established Royalty and the Bid–Ask Spread

If SEPs were bushels of wheat, one could observe a multitude of market transactions in the aggregate that would obviate the forensic attempt by expert witnesses and judges to divide the surplus between buyer and seller. The bid–ask spread would be a sliver, and that fact would be considered a virtuous indicator of market efficiency. The liquidity needs, patience, and bargaining skill of any given seller would be irrelevant to the market's price formation. The idiosyncratic valuations of both the buyer and the seller also would be irrelevant. The conditions permitting an informed market price would obviate any inquiry into the outcome of a hypothetical bilateral negotiation between any two given parties at a given moment. Instead, we

[60] Frank, Passions within Reason, *supra* note 53, at 165. For a (now somewhat dated) survey of that literature, see James Konow, *Which Is the Fairest One of All? A Positive Analysis of Justice Theories*, 41 J. Econ. Literature 1188 (2003). "Justice arguments are now widely invoked to improve theoretical and empirical analysis in nearly every field of economics," wrote Konow in 2003, a development that "contrasts with the traditional belief of many economists that justice is chimerical or amorphous." *Id.* at 1188. "Despite the emerging consensus in economics over the relevance of fairness, though, no … agreement yet exists among economists or, for that matter, among psychologists, political scientists, sociologists, or philosophers, about the proper theory of justice." *Id.* at 1189. Ernst Fehr & Klaus M. Schmidt, *A Theory of Fairness, Competition and Cooperation*, 114 Q.J. Econ. 817 (1999). Earlier surveys on the economics of fairness appear in Edward Zajac's two books. Edward E. Zajac, Political Economy of Fairness (1995); Edward E. Zajac, Fairness or Efficiency: An Introduction to Public Utility Pricing (1978).

would simply consult the observed market price for the given asset on the day specified. In patent law, courts call this kind of market-determined price the "established royalty" for a patent.[61]

2. Fairness in Executing Licenses to SEPs

When no established royalty is apparent, the court must determine how to divide fairly the surplus from licensing the SEPs. As I have argued earlier, a given interpretation of "fairness" for purposes of SEP royalties might actually be an efficiency rationale in disguise that nudges the parties toward a successful voluntary transaction when some emotion threatens to interfere with the maximization of economic surplus. By analogy, research on the Ultimatum Game suggests that emotions such as envy, anger, or spite might upset a negotiation and thus cause the parties to forgo the benefits of dividing the positive surplus from a successful contract formation.[62] (Recall, for example, how Hal Varian, building on work by Duncan Foley,[63] defined a given allocation of resources as fair if it is both Pareto efficient and free from envy,[64] and William Baumol defined a "superfair" allocation of resources as one free from envy.[65])

61 Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir. 1971).

62 One large-scale experiment of the Ultimatum Game found support for the prediction that "informed, knowledgeable respondents may react to small ultimatum offers by perceiving them as unfair, feeling anger, and acting spitefully." Madan M. Pillutla & J. Keith Murnighan, *Unfairness, Anger, and Spite: Emotional Rejections of Ultimatum Offers*, 68 ORG. BEHAV. & HUMAN DECISION PROCESSES 208, 208 (1996). Silicon Valley has had its titans who have expressed anger and spite toward their commercial adversaries. *See, for example*, WALTER ISAACSON, STEVE JOBS (2011). Relatedly, in the business context, negotiators might be adverse to an "unfair" (that is, extremely skewed) split of the surplus based on the purely unemotional reason that it would set an unfavorable precedent for future negotiations or (in the event of information leakage) concurrent negotiations with other parties. The lopsided division of surplus might be used as comparable royalty evidence in future litigations.

63 Duncan K. Foley, *Resource Allocation and the Public Sector*, 7 YALE ECON. ESSAYS 45 (1967).

64 Hal Varian wrote: "Consider the problem of dividing a fixed amount of goods among a fixed number of agents. If, in a given allocation, agent *i* prefers the bundle of agent *j* to his own, we will say *i envies j*. If there are no envious agents at allocation *x*, we will say *x* is *equitable*. If *x* is both pareto efficient and equitable, we will say *x* is *fair*." Hal R. Varian, *Equity, Envy, and Efficiency*, 9 J. ECON. THEORY 63, 63 (1974) (emphasis in original); Konow, *supra* note 60, at 1204 ("The theory of fairness with the purest economic pedigree, and the usual definition of equity in welfare economics, is the absence of envy criterion."). *But see id.* at 1205 ("Absence of envy is questionable not only as a description of justice but also of what is meant by envy in common parlance: it seems quite possible that I would like to have another person's allocation, but that I do not experience the resentful feeling about his advantage that the word envy typically connotes.").

65 WILLIAM J. BAUMOL, SUPERFAIRNESS: APPLICATIONS AND THEORY 15 (1986).

Matthew Rabin has studied how explicit consideration of fairness influences monopoly pricing.[66] An important caveat that he makes is that the players "make only mutually beneficial offers."[67] This restriction is fortuitous for purposes of analogizing his analysis to a FRAND or RAND royalty negotiation because (in my opinion) the succinct economic meaning of the reasonableness constraint is to demand that the SEP holder's offered price would produce a positive surplus for the offeror and for the offeree. Rabin then asks: "What is the highest price consistent with a fairness equilibrium at which this product could be sold?"[68] He finds that "the highest equilibrium price is lower than the conventional monopoly price when fairness is added to the equation."[69] This result – which is consistent with the earlier experimental findings of Daniel Kahneman, Jack Knetsch, and Richard Thaler – implies, in Rabin's words, that "a monopolist interested in maximizing profits ought not to set price at 'the monopoly price,' because it should take consumers' attitudes toward fairness as a given."[70]

One might conjecture that the purpose of a contractual obligation to make a "fair" division of surplus is to keep on a short leash the human emotions that might upset a mutually beneficial transaction. This interpretation of "fair" seems to be an acknowledgment that some principle ostensibly rooted in fairness is in actuality a lubricant to facilitate efficient voluntary exchange. So viewed, the constraint that a price embody fairness is in truth a means to an end. Just as a reduction in transaction costs can facilitate the expeditious conclusion of a voluntary exchange, so too can the absence of certain kinds of provocative (or strategic) behavior reduce the likelihood that one party will walk away in anger or spite from a voluntary negotiation that, if completed, would create surplus in which both parties would share.[71] This possibility is consistent with the observation of Kahneman, Knetsch,

[66] Matthew Rabin, *Incorporating Fairness into Game Theory and Economics*, 83 AM. ECON. REV. 1281, 1292 (1993).

[67] *Id.*

[68] *Id.*

[69] *Id.* at 1293.

[70] *Id.* (citing Daniel Kahneman, Jack L. Knetsch, & Richard H. Thaler, *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 AM. ECON. REV. 728 (1986); Daniel Kahneman, Jack L. Knetsch, & Richard H. Thaler, *Fairness and the Assumptions of Economics*, 59 J. BUS. S285 (1986)).

[71] A negotiation might reach an impasse because of "the tendency for parties to arrive at judgments that reflect a self-serving bias – to conflate what is fair with what benefits oneself." Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role of Self-Serving Biases*, 11 J. ECON. PERSP. 109, 110 (1997). "Such self-serving assessments of fairness," Babcock and Loewenstein warn, "can impede negotiations and promote impasse in at least three ways." *Id.* The first way that they describe actually results from the incorrect identification of the bargaining range owing to a false understanding of one's true outside option: "if negotiators estimate the value of the alternatives to negotiated settlements in self-serving ways, this could rule out any chance of settlement by eliminating the contract zone (the set of agreements that both sides prefer to their reservation values)." *Id.* In contrast, the next two ways concern biases affecting the division of a positive surplus whose size is commonly understood:

and Thaler in 1986 that earlier arguments by Arthur Okun, George Akerlof, and Kenneth Arrow "to account for apparent deviations from the simple model of a profit-maximizing firm is that fair behavior is instrumental to maximization of long-run profits."[72] "In these approaches," they write, "the rules of fairness define the terms of an enforceable implicit contract: Firms that behave unfairly are punished in the long run."[73]

Fairness in executing licenses to today's SEPs can serve as a credible commitment to one's doing so with respect to tomorrow's SEPs, which are currently unknown. Fairness in the execution of licenses can produce increased acceptance of the SEP holder's technologies in future standards, increased participation by future implementers and holders of complementary SEPs, and an increased probability that the standard will achieve the scale necessary to be commercially successful. Fairness might be a commitment not to pull back the veil of ignorance, and thus fairness might discourage actions such as the IEEE's 2015 bylaw revisions, which large implementers favored and large SEP holders opposed.[74]

D. *Licensing SEPs on Terms Consistent with the Fairness Constraint of the FRAND Contract between the SEP Holder and the SSO*

By definition, any price within the bargaining range is mutually beneficial. But that fact does not imply that every such price is equally likely to yield an agreement. How does a given split of the surplus between the SEP holder and the implementer influence the probability of their successful contract formation within a specified period of time? Is the distinguishing characteristic of a fair royalty that it leads more expeditiously to contract formation than some other division of the same gains from trade?

> Second, if disputants believe that their notion of fairness is impartial and shared by both sides, then they will interpret the other party's aggressive bargaining not as an attempt to get what they perceive of as fair, but as a cynical and exploitative attempt to gain an unfair strategic advantage. Research in psychology and economics has shown that bargainers care not only about what the other party offers, but also about the other party's motives. Third, negotiators are strongly averse to settling even slightly below the point they view as fair. If disputants are willing to make economic sacrifices to avoid a settlement perceived as unfair and their ideas of fairness are biased in directions that favor themselves, then bargainers who are "only trying to get what is fair" may not be able to settle their dispute.

Id. (citation omitted).

72 Kahneman et al., *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, *supra* note 70, at 728.

73 *Id.* at 728–29.

74 J. Gregory Sidak, *The Antitrust Division's Devaluation of Standard-Essential Patents*, 104 Geo. L. J. Online 48 (2015); J. Gregory Sidak, *Testing for Bias to Suppress Royalties for Standard-Essential Patents*, 1 Criterion J. Innovation 301 (2016).

To analyze this question, let us normalize the bargaining range so that it runs from 0 to 100. Normalizing the bargaining range simplifies the application of this analysis to different prospective implementers of the SEPs belonging to a given SEP holder. A license agreement struck at a normalized price of 0 gives the implementer 100% of the surplus. That is, an agreement at a normalized price of 0 is equivalent to a license bearing a royalty rate equal to the SEP holder's minimum willingness to accept and not a penny more. In contrast, an agreement at a normalized price of 100 gives the SEP holder 100% of the surplus. That is, an agreement struck at a normalized price of 100 is equivalent to a license bearing a royalty rate equal to the implementer's maximum willingness to pay and not a penny less.

For any license agreement struck at a normalized price between 0 and 100, each party will gain some of the surplus generated. For any possible agreement at a single given normalized price between 0 and 100, some probability exists that, within a specified period of time, the implementer will accept that price and enter into an agreement, and some different probability exists that the SEP holder will accept that same price and enter into an agreement. If both parties accept the same price, then an agreement is reached, and contract formation occurs.

The probability that the implementer will agree to terms decreases as the negotiated price moves farther from the SEP holder's minimum willingness to accept and closer to the implementer's maximum willingness to pay. Conversely, the probability that the SEP holder will agree to terms increases as the negotiated price moves farther from the SEP holder's minimum willingness to accept and closer to the implementer's maximum willingness to pay. The implementer has a "bid function" that determines the implementer's probability of agreeing to terms (within a specified period of time) at any given price over the bargaining range. Similarly, the SEP holder has an "ask function" that determines the SEP holder's probability of agreeing to terms (within the same specified period of time) at any given price over the bargaining range.

If the bid function and the ask function are symmetric, then the most common agreement will occur where the parties divide the gains from trade evenly. This 50–50 outcome is merely the arithmetic implication of the bid function's being the mirror image of the ask function. It is important to emphasize that this result does not rely on the Nash bargaining solution, which predicts a 50–50 split of the surplus in a bilateral negotiation using cooperative game theory.[75] Nor does this result rely

[75] John F. Nash, Jr., *The Bargaining Problem*, 18 ECONOMETRICA 155 (1950). In his 1950 article, John Nash proposed a solution to what he called the "bargaining situation" – an economic game in which two parties "have the opportunity to collaborate for mutual benefit in more than one way." *Id.* at 155. A solution to that game maximizes "the amount of satisfaction each [party] should expect to get from the situation." *Id.* According to Nash's model, an increase in the value of a party's position absent an agreement improves the party's bargaining position and therefore results in an improvement in that party's value of the bargain.

Before deriving his solution, Nash made certain assumptions about the game's participants: that each bargaining party is "highly rational," "can accurately compare [its] desires for various

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on the familiar cake-cutting principle described by Rawls and others – "You cut, I choose"[76] – which Peyton Young notes "is fair because the outcome is envy-free."[77]

However, there is no economic reason to expect that the bid function and the ask function will be symmetric. In practice, risk aversion, discount rates, or other economic factors will influence the specific shapes for the bid function and the ask function.

The point royalty within the range of reasonable royalties upon which the SEP holder and the implementer will agree – that is, how they will divide the surplus from voluntary exchange – will be determined by the parties' relative bargaining power. The party that suffers least from delaying the agreement – that is, the party that is most patient – will typically have more bargaining power. Parties can have different levels of "patience" during a FRAND licensing negotiation while still negotiating in good faith, and it is common for SEP negotiations to take multiple years. For example, a SEP holder that lacks liquidity might need an immediate resolution of the negotiations. Or the implementer might be on the verge of releasing a standard-compliant product and therefore quickly needs a license to the SEPs before releasing a noninfringing product. Conversely, the SEP holder might not need an immediate license to the SEPs, which would increase its bargaining power. The near-absence of injunctive relief in SEP infringement litigation and the limited likelihood of enhanced damages might lead one to conclude, all other factors remaining the same, that implementers are more

things," is "equal [to the other] in bargaining skill," "has full knowledge of the tastes and preferences of the other," and "wishes to maximize the utility to [itself] of the ultimate bargain." *Id.* at 155, 159. Nash further assumed the independence of irrelevant alternatives – that is, if a bargainer faces a choice between A and B and prefers A to B, then that bargainer must also prefer A to B if faced with a choice between A, B, and C. *Id.* at 156. In 1953, Nash extended his 1950 article in a manner that "tells the players what threats they should use in negotiating." John Nash, *Two-Person Cooperative Games*, 21 Econometrica 128, 130 (1953). He summarized: "Supposing A and B to be rational beings, it is essential for the success of the threat that A be *compelled* to carry out his threat *T* if *B* fails to comply. Otherwise it will have little meaning." *Id.* (emphasis in original).

American courts have been skeptical of the real-world applicability of the Nash bargaining solution as expert economic testimony and thus bristle at its invocation as a basis for predicting a 50–50 division of surplus in a bilateral negotiation. As the Federal Circuit explained in the context of measuring reasonable royalty damages for patent infringement, "[t]he Nash [bargaining] theorem arrives at a result that follows from a certain set of premises" but "itself asserts nothing" about the real-world reliability of those premises. VirnetX, Inc. v. Cisco Sys., Inc., 767 F.3d 1308, 1332 (Fed. Cir. 2014) (analyzing Nash, *The Bargaining Problem*, *supra* note 75).

76 Rawls, A Theory of Justice, *supra* note 47, at 74; Ken Binmore, Game Theory and the Social Contract: Just Playing 382–83 (1998); H. Peyton Young, Equity in Theory and Practice 135 (1994); H. Peyton Young, *Dividing the Indivisible*, 38 Am. Behavioral Scientist 904, 911–12 (1995); Hugo Steinhaus, *The Problem of Fair Division*, 16 Econometrica 101 (1948).

77 Young, Equity in Theory and Practice, *supra* note 76, at 135.

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"patient." It is well established in the economic literature that the cost that each party bears from a delay is measured by its respective discount rate.[78]

A more precise model could use different assumptions concerning the probability of contract formation. For example, are the probabilities for the two parties independent of one another, or is each probability conditional on the expected reaction of the counterparty (and, if so, for how many future rounds of the negotiation)? These questions are appropriate to ask if an economist wants to model the probability of contract formation in precise mathematical terms – for example, along the lines of the Rubinstein bargaining model, which is based on noncooperative game theory.[79] But my goal here is more modest and more heuristic. So those particulars about the precise nature of the probabilities are unnecessary to resolve to make the larger point (which I believe a judge or jury could readily understand intuitively) – namely, that it is reasonable to expect that the speed of contract formation will depend on the relative parity or disparity of the shares by which each party to a negotiation proposes to divide the surplus from a successful licensing transaction.

One proposed division of surplus might be substantially more likely than another to yield successful contract formation within a specified period of time spent negotiating. For example, it seems intuitively clear that a 60–40 split of the surplus would more readily be accepted by both parties than would a 99–1 split. If so, we would say that the 60–40 split is fairer than the 99–1 split.

What would be the threshold for a judge or jury to make the qualitative determination that a particular division of surplus would be *unfair*? Perhaps the experimental results of the Ultimatum Game, which I discussed earlier, will suggest a useful line of analysis.

[78] Pindyck & Rubinfeld, *supra* note 45, at 562; Robert Gibbons, Game Theory for Applied Economists 68–71 (1992).

[79] Ariel Rubinstein, *Perfect Equilibrium in a Bargaining Model*, 50 Econometrica 97 (1982).